CONTENTS

Root apical organization in gymnosperms—some conifers *Ambuja Pillai* 1

Cytotaxonomic and geographic notes on *Uvularia* (Liliaceae) *Shoichi Kawano and Hugh H. Iltis* 13

Pure cultures of some Myxomycetes *Ian K. Ross* 23

Behind-glass culture of *Melampyrum lineare* Desr., a root-parasitic flowering plant *William M. Malcolm* 31

A synopsis of the Characeae *R. D. Wood* 35

Torreya

An annotated bibliography of the floristic publications of New Jersey from 1753–1961 *David E. Fairbrothers* 47

Field trip reports 57

Local flora notes 58

Index to American botanical literature 59

Embryological studies in the Menispermaceae II. Embryo and seed development *R. L. N. Sastri* 79

Cytoplasmic nodules in the endosperm of Angiosperms *Dalbir Singh* 86

Contributions to the morphology of *Tectaria*: The spores, prothalli, and juvenile sporophytes *B. K. Nayar and Surjit Kaur* 95

Embryology of *Trichodesma amplexicaule* Roth *Pushpa Khanna* 105

Six problems in New Zealand vegetation *Pierre Dansereau* 114

Torreya

An annotated, chronological bibliography of the floristic publications of New Jersey from 1753–1961 *David E. Fairbrothers* 141

Harry A. Allard, naturalist: his life and work (1880–1963) *Ashley B. Gurney* 151

Book reviews 164

Index to American botanical literature 166

Barley diseases newly found in Israel *R. Kenneth, Y. Koltin and I. Wahl* 185

Meiotic chromosomes of monoecious Kentucky hemp (*Cannabis sativa*) *Margaret Y. Menzel* 193

Gymnospermous additions to the Oligocene flora of southwestern Montana *Herman F. Becker* 206

An unusual distribution of algae in an antarctic lake *Gene E. Likens* 213

Determinant growth in the morphogenesis of bean hypocotyls *Richard M. Klein and Barbara Witterholt Weisel* 217

***Woronina pythii* Goldie-Smith in India** *John S. Karling* 224

Torreya

Mintin Asbury Chrysler *Marion A. Johnson* 228

Additions and corrections to a flora of Rockland County, New York ..... *J. Harry Lehr* 231
Further observations on living stumps of *Tsuga canadensis* (L.) Carr. (Hemlock) in northern New Jersey *Donald W. Davidson and Roger M. Davis* 233
Book reviews 234
Index to American botanical literature 239
The effects of temperature on growth, sporulation and asexual spore germination in the genus *Radiomyces* ... *Robert W. Embree* 263
Vascular elements in juice vesicles of the lemon fruit *H. A. Kordan* 271
Notes on clavarioid fungi. II. Corrections in the genera *Ramariopsis* and *Clavaria* ..... *Ronald H. Petersen* 274
Oospore variation in culture as applied to the taxonomy of *Chara* *Fay Kenoyer Daily* 281
Radioecology and the study of environmental radiation *William E. Martin* 283
Host-damage by *Castilleja coccinea* (L.) Spreng., a root-parasitic flowering plant ..... *William M. Malcolm* 324
Volatile growth inhibitors produced by *Salvia* species *Walter H. Muller and Cornelius H. Muller* 327

Torreya
An appreciation—Clarence Emerson Kobuski (1900–1963) *Caroline K. Allen* 331
***Viola papilionacea* Pursh forma *Michaeli* E. Creutz** *J. Harry Lehr* 334
***Acorus calamus* in New Jersey** *Robert A. Jervis and Murray F. Buell* 335
Book reviews 336
Index to American botanical literature 338
Antimicrobial activity of the Cactaceae *James A. McCleary and David L. Walkington* 361
Studies on pollen germination of certain Solanaceae ..... *I. K. Vasil* 370
Anatomy of mycorrhizae of selected eastern forest trees *J. A. Vozzo and E. Hacskaylo* 378
A resurvey of a loblolly pine community twenty-nine years after ground and crown fire ..... *H. J. Oosting and R. B. Livingston* 387
Natural and synthetic hybrids of *Agropyron spicatum* × *Sitanion hystrix* ..... *Douglas R. Dewey* 396

Torreya
Truman George Yuncker ..... *Winona H. Welch* 406
Notes on the cultivation of insectivorous plants in vitro *Carl L. Withner* 412
Field trip reports 413
Local flora notes 414
Notice of agreement 415
Book reviews 415
Index to American botanical literature 418

An evaluation of plot methods for alpine vegetation
Lee E. Eddleman, Elmer E. Remmenga and Richard T. Ward 439
Old-age stand of hemlock-northern hardwood forest in central Vermont ..... *F. H. Bormann and M. F. Buell* 451
Biosystematic studies in the *Bouteloua curtipendula* complex. IV. Dynamics of variation in *B. curtipendula* var. *caespitosa*
Z. J. Kapadia and F. W. Gould 465
Studies on Antipodal Hepaticae. VI. the suborder Perssoniellinae: morphology, anatomy and possible evolution ..... *R. M. Schuster* 479
Genetic studies of the bracteole differences of *Gossypium hirsutum* and *G. tomentosum* ..... *J. C. Murray and Shih-Chang Yin* 491

Torreya
Otto Emery Jennings ..... *L. K. Henry* 502
A comparative study of the anthocyanins in the red-fruited and yellow-fruited flowering dogwood
Wayne Chester and Carolyn Stone 506
Field trip report 507
Note about dues 507
Book reviews 508
Index to American botanical literature 513

Dates of issue of volume 91

No. 1, January–February	18, February 1964
No. 2, March–April	3, April 1964
No. 3, May–June	14, May 1964
No. 4, July–August	10, July 1964
No. 5, September–October	14, August 1964
No. 6, November–December	3, December 1964

INDEX TO VOLUME 91

Names of contributors and of authors of books reviewed are printed in CAPITALS. Names of new genera, species, varieties, forms and combinations are printed in **bold face**. Numbers in **bold face** refer to pages where such a name is accompanied by a description or illustration. Numbers in *italic* refer to pages on which a name is listed as a synonym. Page number for a plant entity is given for only the first time it appears in any one article.

Acer rubrum, 378, 458; *saccharum*, 458
"*Acorus calamus* in New Jersey," 335
Adanson, The bicentennial of Adanson's "Familles des Plantes." Part one (Review), 508
"Additions and corrections to a flora of Rockland County, New York," 231–233
Advances in pest control research, Vol. V. (Review), 164
AGERTER, SHARLENE R.: (see GLOCK), 337
Agropyron scribneri, 442; *trachycaulum*, 399
Allard, Harry A., obituary of, 151
ALLEN, CAROLINE K.: Kobuski obituary, 331
"Anatomy of mycorrhizae of selected eastern forest trees," 378–387
ANDERSON, E. B. et al.: *The Oxford book of garden flowers* (Review), 336
"An annotated bibliography of the floristic publications of New Jersey from 1753–1961," 47–56, 141–151
An annotated synopsis of the genera and subgenera of Lejeuneaceae I. Introduction: annotated keys to subfamilies and genera (Review), 510
"Antimicrobial activity of the Cactaceae," 361–369
Aspidium, 95
BALDWIN, J. T. JR.: (Review), 415–416
BALFOUR, A. P.: (see ANDERSON), 336
"Barley diseases newly found in Israel," 185–193
BECKER, HERMAN F.: "Gymnospermous additions to the Oligocene flora of southwestern Montana," 206–213
"Behind-glass culture of *Melampyrum lineare* Desr., a root-parasitic flowering plant," 31–35
BIERHORST, DAVID W.: (Review), 164
"Biosystematic studies in the *Bouteloua curtipendula* complex. IV. Dynamics of variation in *B. curtipendula* var. *caespitosa*," 465–478
BONNER, C. E. B.: (see MILLER), 510
BORMANN, F. H. and M. F. BUELL: "Old-age stand of hemlock-northern hardwood forest in central Vermont," 451–465
Bryoflora of the atolls of Micronesia (Review), 510
BUELL, M. F.: (see BORMANN), 451
Cactaceae, antimicrobial activity, 361
Calamagrostis purpurascens, 442
Cannabis sativa, 193
Capsicum annuum, 371
Castilleja coccinea, 324
Cephalocereus euphorbioides, 367
Cereus peruvianus, 361
Chara, 281
Characeae, 35
"Checkerboard spot disease and leaf flecking," 191
CHENEY, RALPH HOLT: (Review), 238
CHESTER, WAYNE and CAROLYN STONE: "A comparative study of the anthocyanins in the red-fruited and yellow-fruited flowering dogwood," 506
Chromosomes in *Cannabis sativa*, 193
Chrysler, Mintin Asbury, obituary of, 228
Clavaria biformis, 276; filipes, 277; *rufipes, 274*
Clavulinopsis biformis, 276; filipes, 277; rufipes, 274
CLEMENTS, FREDERICK E.: *Plant succession and indicators* (Review), 512
"A comparative study of the anthocyanins in the red-fruited and yellow-fruited flowering dogwood," 506
"Contributions to the morphology of *Tectaria*: The spores, prothalli, and juvenile sporophytes," 95–105
CORRELL, DONOVAN S.: (Review), 416–417
Cross compatibility, 397
CRUM, HOWARD: (Review), 509; (Review), 510; (Review), 511
"Cytoplasmic nodules in the endosperm of Angiosperms," 86–94
"Cytotaxonomic and geographic notes on *Uvularia* (Lilianceae)," 13–23
DAILY, FAY KENOYER: "Oospore variation in culture as applied to the taxonomy of *Chara*," 281–283
DANSEREAU, PIERRE: "Six problems in New Zealand vegetation," 114–140
DAVIDSON, DONALD W.: (Review), 337
DAVIDSON, DONALD W. and ROGER M. DAVIS: "Further observations on living stumps of *Tsuga canadensis* (L.) Carr. (hemlock) in northern New Jersey," 233–234
DAVIS, R. M.: (see DAVIDSON), 233
The Developmental anatomy of Isoetes (Review), 164
"Determinant growth in the morphogensis of bean hypocotyls," 217–224
DEWEY, DOUGLAS R.: "Natural and syn-

thetic hybrids of *Agropyron spicatum* × *Sitanion hystrix*," 396–405
Dormancy, Gymnosperm root apex, 7
Downy mildew, 185; morphology of, 187
Echinofossulocactus sp., 367
Echinopsis sp., 367
EDDLEMAN, L. E., E. E. REMMENGA and R. T. WARD: "An evaluation of plot methods for alpine vegetation," 439–450
"The Effects of temperature on growth, sporulation and asexual spore germination in the genus *Radiomyces*," 263–270
EMBREE, ROBERT W.: "The effects of temperature on growth, sporulation and asexual spore germination in the genus *Radiomyces*," 263–270
Embryo, *Menispermaceae*, 79
"Embryological studies in the Menispermaceae, II. Embryo and seed development," 79–85
"Embryology of *Trichodesma amplexicaule* Roth," 105–114
Endosperm, nodules in, 86
Entyloma Korshinskyi, 191
Environmental control of plant growth (Review), 235
"An Evaluation of plot methods for alpine vegetation," 439–450
EVANS, L. T.: *Environmental control of plant growth* (Review), 235
Fagus grandifolia, 378, 458
FAIRBROTHERS, DAVID E.: "An annotated bibliography of the floristic publications of New Jersey from 1753–1961," 47–56, 141–151
Fallout, 289
Families of flowering plants of southern Africa (Review), 415
Festuca ovina, 442
FINNIS, VALERIE: (see ANDERSON), 336
FISH, MARGERY: (see ANDERSON), 336
Flowering trees of the world (Review), 336
Fontinalaceae (Review), 509
FORGASH, ANDREW J., KENNETH HELRICH, STANLEY E. KATZ, and GEORGE WINNETT: (Review), 164
FOSBERG, F. R.: (Review), 234, 508
Fraxinus americana, 458
"Further observations on living stumps of *Tsuga canadensis* (L.) Carr. (hemlock) in northern New Jersey," 233–234
GATES, DAVID M.: (Review), 235
Generic names of orchids (Review), 416
"Genetic studies of the bracteole differences of *Gossypium hirsutum* and *G. tomentosum*," 491–501
GERMANN, PAUL J.: (see GLOCK), 337
Geum turbinatum, 442
GILLIS, WILLIAM T.: (Review), 236
GLOCK, WALDO S. et al.: *Uniformity among growth layers in three ponderosa pine* (Review), 337
GOULD, F. W.: (see KAPADIA), 465
GURNEY, ASHLEY B.: Allard obituary, 151
"Gymnospermous additions to the Oligocene flora of southwestern Montana," 206–213
Gymnosperms, root apical organization, 1
HACSKAYLO, E.: (see VOZZO), 378
HELRICH, KENNETH: (see FORGASH), 164
HENRY, L. K.: Jennings obituary 502
"Host-damage by *Castilleja coccinea* (L.) Spreng., a root-parasitic flowering plant," 324–326
Hylocereus undatus, 367
Ilex opaca, 378
ILTIS, HUGH H.: (See KAWANO), 13
Ionizing radiation, 283
Jennings, Otto Emery, obituary of, 502
JERVIS, ROBERT A. and MURRAY F. BUELL: "*Acorus calamus* in New Jersey," 335
JOHNSON, MARION A.: Chrysler obituary, 228
Kalanchoë daigremontiana, parasite host, 325
KAPADIA, Z. J. and F. W. GOULD: "Biosystematic studies in the *Bouteloua curtipendula* complex. IV. Dynamics of variation in *B. curtipendula* var. *caespitosa*," 465–478
KARLING, JOHN S.: "*Woronina pythii* Goldie-Smith in India," 224–227
KATZ, STANLEY E.: (see FORGASH), 164
KAUR, SURJIT: (see NAYAR), 95
KAWANO, S. and H. H. ILTIS: "Cytotaxonomic and geographic notes on *Uvularia* (Liliaceae)," 13–23
KENNETH, R., Y. KOLTIN and I. WAHL: "Barley diseases newly found in Israel," 185–193
Kentucky hemp, 193
KHANNA, PUSHPA: "Embryology of *Trichodesma amplexicaule* Roth," 105–114
KLEIN, RICHARD M. and BARBARA WITTERHOLT WEISEL: "Determinant growth in the morphogenesis of bean hypocotyls," 217–224
Kobuski, Clarence Emerson, obituary of, 331
KOLTIN, Y.: (see KENNETH), 185
KORDAN, H. A.: "Vascular elements in juice vesicles of the lemon fruit," 271–273
LAWRENCE, G. H. M.: *Adanson, The bicentennial of Adanson's "Familles des Plantes,"* Part One (Review), 508
Leaf smut, 191

LEHR, J. HARRY: "Local flora notes," 58, 414
LEHR, J. HARRY: "Additions and corrections to a flora of Rockland County, New York," 231–233
LEHR, J. HARRY: *"Viola papilionacea* Pursh forma *Michaeli* E. Creutz," 334
L'HERITIER DE BRUTELLE, C.: Sertum Anglicum, *1788* (Review), 234
LI, HUI-LIN: *Woody flora of Taiwan* (Review), 236
LIKENS, GENE E.: "An unusual distribution of algae in an antarctic lake," 213–217
Liliaceae, *Uvularia*, 13
Liquidambar styraciflua, 378
Liriodendron tulipifera, 378
LIVINGSTON, R. B.: (see OOSTING), 387
Loblolly pine, 387
"Local flora notes," 58
Lophophora williamsii, 361
MALCOLM, WILLIAM M.: "Behind-glass culture of *Melampyrum lineare* Desr., a root-parasitic flowering plant," 31–35
MALCOM, WILLIAM M.: "Host damage by *Castilleja* coccinea (L.) Spreng., a root-parasitic flowering plant," 324–326
Mammillaria bocasana, 361
MARTIN, WILLIAM E.: "Radioecology and the study of environmental radiation," 283–323
MCCLEARY, JAMES A. and DAVID L. WALKINGTON: "Antimicrobial activity of the Cactaceae," 361–369
"Meiotic chromosomes of monoecious Kentucky hemp, (*Cannabis sativa*)," 193–205
Melampyrum lineare, 31
Menispermaceae, embryology of, 79
MENNINGER, EDWIN A.: *Flowering trees of the world* (Review), 336
MENZEL, MARGARET Y.: "Meiotic chromosomes of monoecious Kentucky hemp (*Cannabis sativa*)," 193–205
Meristem in gymnosperms, 1
Mertensia viridis, 442
Metacutization, Gymnosperm root apex, 11
METCALF, R. L.: *Advances in pest control research*, Vol. V (Review), 164
MILLER, H. A., H. O. WHITTIER, and C. E. B. BONNER: *Bryoflora of the atolls of Micronesia* (Review), 510
Morphogenesis, bean hypocotyl, 217
Morphology of *Tectaria*, 95
MULLER, CORNELIUS H.: (see MULLER, WALTER H.), 327
MULLER, WALTER H. and CORNELIUS H. MULLER: "Volatile growth inhibitors produced by *Salvia* species," 327–330
MURRAY, JAY, C. and SHIH-CHANG YIN: "Genetic studies of bracteole differences of *Gossypium hirsutum* and *G. tomentosum*," 491–501
Mycorrhizae, 378
Myxomycetes pure cultures, 23
Narcotics, nature's dangerous gifts (Review) 238
"Natural and synthetic hybrids of *Agropyron spicatum* X *Sitanion hystrix*," 396–405
NAYAR, B. K. and SURJIT KAUR: "Contributions to the morphology of *Tectaria*: The spores, prothalli, and juvenile sporophytes, 95–105
New Zealand, vegetational problems, 114
Nodules, cytoplasmic, 86
"Notes on clavarioid fungi. II. Corrections in the genera *Ramariopsis* and *Clavaria*," 274–280
"Notes on the cultivation of insectivorous plants in vitro," 412
Oligocene flora, additions to, 206
"Oospore variation in culture as applied to the taxonomy of *Chara*," 281–283
OOSTING, H. J. and R. B. LIVINGSTON: "A resurvey of a loblolly pine community twenty-nine years after ground and crown fire," 387–395
Ophiocladium hordei, 191
Opuntia vulgaris, 361
Ovularia hordei, 191
The Oxford book of garden flowers (Review), 336
Pachytene karyotypes in *Cannabis sativa*, 203
PAOLILLO, DOMINICK J., JR.: *The Developmental anatomy of Isoctes* (Review), 164
Parasitism in *Castilleja coccinea*, 324
PEASE, ARTHUR STANLEY: (see SCHULTES), 416
PETERSEN, RONALD H.: "Notes on clavarioid fungi. II. Corrections in the genera *Ramariopsis* and *Clavaria*," 274–280
PILLAI, AMBUJA: "Root apical organization in gymnosperms—some conifers," 1–12
Pinus **hexaphylla**, 209
Pinus taeda, 387
Pinus virginiana, 378
Plant succession and indicators (Review), 512
Poa pattersoni, 442
Polygonum bistortoides, 442
Prunus serotina, 458
"Pure cultures of some Myxomycetes," 23–31
Quercus lobata, 378

"Radioecology and the study of environmental radiation," 283–323
Radiomyces, 263; *R. embreei*, 263; *R. spectabilis*, 263
Ramariopsis **biformis** (Atkinson) Petersen. comb. nov., 276
Ramariopsis **rufipes** (Atkinson) Petersen comb. nov., 274
Ramariopsis tenuiramosa Corner., 278
REMMENGA, ELMER E.: (see EDDLEMAN), 439
"A Resurvey of a loblolly pine community twenty-nine years after ground and crown fire," 387–395
RICKETT, HAROLD WILLIAM: *Bibliography of Fontinalaceae* (Review), 509
RILEY, HERBERT PARKES: *Families of flowering plants of southern Africa* (Review), 415
"Root apical organization in gymnosperms—some conifers," 1–12
Ross, Ian K.: "Pure Cultures of some Myxomycetes," 23–31
Salvia, production of growth inhibitors, 327
SASTRI, R. L. N.: "Embryological studies in the Menispermaceae II. Embryo and seed development," 79–85
Schizothrix calcicola, 215
SCHULTES, RICHARD EVANS and ARTHUR PEASE: *Generic names of orchids* (Review), 416
Schlumbergera truncata, 361
SCHUSTER, R. M.: "Studies on Antipodal Hepaticae. VI. the suborder Perssoniellinae: morphology, anatomy and possible evolution," 479–490
SCHUSTER, R. M.: *An annotated synopsis of the genera and subgenera of Lejeuneaceae. I. Introduction: annotated keys to subfamilies and genera* (Review), 510.
Scleropspora macrospora, 188
Sclerophthora macrospora, 188; *cryophila* 189; **rayssiae**, 189
Seleniocereus sp., 367
Sertum Anglicum, 1788, (Review), 234
SHREVE, FORREST and IRA L. WIGGINS: *Vegetation and flora of the Sonoran desert* (Review), 511
SINGH, DALBIR: "Cytoplasmic nodules in the endosperm of Angiosperms," 86–94
"Six problems in New Zealand vegetation," 114–140
Solanum melongena, 371; *tuberosum* var. *helora*, 371; *tuberosum* var. *phulwa*, 371
Spore germination, *Radiomyces*, 263
STEPHENSON, STEPHEN N.: (Review), 511–512
STONE, CAROLYN: (see CHESTER), 506
"Studies on Antipodal Hepaticae. VI. the suborder Perssoniellinae: morphology, anatomy, and possible evolution," 479–490
"Studies on pollen germination of certain Solanaceae," 370–377
"A Synopsis of the Characeae," 35–46
TAYLOR, NORMAN: *Narcotics, nature's dangerous gifts* (Review), 238
Tectaria, morphology of, 95; spores of, 96
Tilia americana, 458
Trichocereus lamprochlorus, 361
Trichodesma amplexicaule, embryology of, 105
Tsuga canadensis, 458
Ulmus americana, 378; 458
Uniformity among growth layers in three ponderosa pine (Review), 337
"An Unusual distribution of algae in an antarctic lake," 213–217
Uvularia, 13; *grandiflora* 15; *perfoliata*, 15; *puberula*, 17; *sessilifolia*, 16
"Vascular elements in juice vesicles of the lemon fruit," 271–273
VASIL, I. K.: "Studies on pollen germination of certain Solanaceae," 370–377
Vegetation and flora of the Sonoran desert (Review), 511
"Viola papilionacea Pursh forma *Michaeli* E. Creutz," 334
"Volatile growth inhibitors produced by *Salvia* species," 327–330
VOZZO, J. A. and E. HACSKAYLO: "Anatomy of mycorrhizae of selected eastern forest trees," 378–387
WAHL, I.: (see KENNETH), 185
WALKINGTON, DAVID L.: (see MCLEARY), 361
WALLIS, MICHAEL: (see ANDERSON), 336
WARD, RICHARD T.: (see EDDLEMAN), 439
WEISEL, B. W.: (see KLEIN), 217
WELCH, WINONA H.: Yuncker obituary, 406
WELCH, WINONA H.: *Fontinalaceae* (Review), 509
WHITTAKER, R. H.: (Review), 512
WHITTIER, H. O.: (see MILLER), 510
WIGGINS, IRA L.: (see SHREVE), 511
WINNETT, GEORGE (see FORGASH), 164
WITHNER, CARL L.: "Notes on the cultivation of insectivorous plants in vitro," 412
WOOD, R. D.: "A snyopsis of the Characeae," 35–46
WOODWARD, CAROL H.: Review, 336
Woody flora of Taiwan (Review), 236
"Woronina pythii Goldie-Smith in India," 224–227
YIN, SHIH-CHANG: (see MURRAY), 491
Yuncker, Truman George, obituary of, 406